Addendum to Asset Management Plan

State of Local Infrastructure, Levels of Service, Lifecycle & Financial Management Strategy

TOWNSHIP OF MACHAR

Always in Season

Table of Contents

Revision #	Date	Notes
1	June 2025	○ Update asset listing. ○ Update asset conditions. ○ Update current replacement values. ○ Insert proposed levels of service. ○ Insert financing strategy.

Introduction

As required by O. Reg. 588/17 (the “Regulation”), municipalities are required to include all assets (core and non-core) in their Asset Management Plan (the “Plan”) by July 1, 2024. The Plan must include current levels of service, an assessment of inventory, and lifecycle activities required to maintain the current level of service. By July 1, 2025, the Plan must be updated to include the proposed levels of service the Township wishes to meet, as well as a Lifecycle Management and Financing Strategy. The purpose of this addendum to the Township of Machar’s 2017 Asset Management Plan is to meet the July 1, 2025 requirements of the Regulation.

The Addendum provides an update of the Township’s asset inventory as at December 31, 2024. Dollar amounts have been updated to reflect 2024 dollars. Other asset data, such as condition ratings, have been updated where possible to reflect more accurate information. This will provide the public with updated information on Township assets. It will also better inform Council and Township staff in the decision-making process and planning for the future.

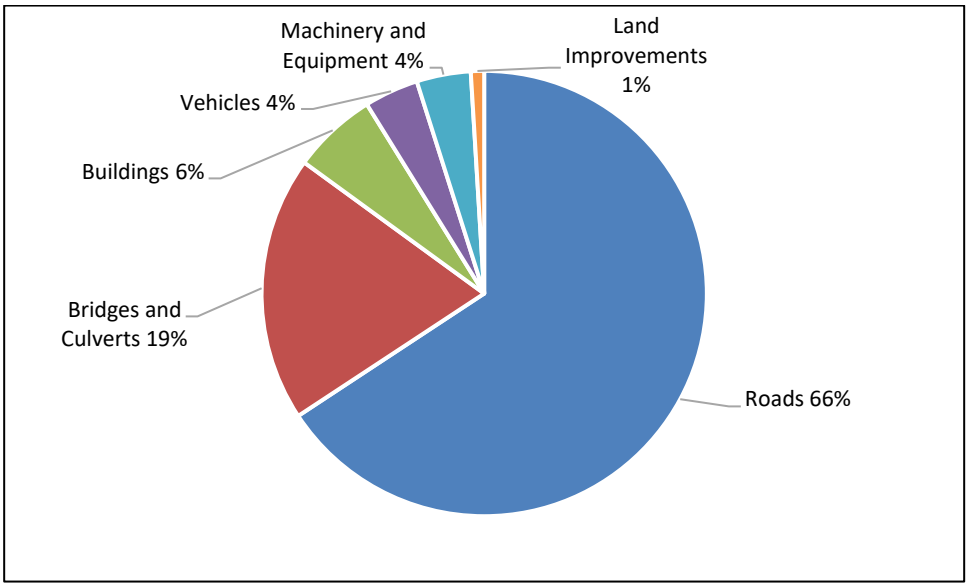
Overview

The addendum to the Plan includes the state of local infrastructure, current and proposed levels of service, and a lifecycle and financing strategy for six (6) asset classes, including: Roads, Bridges and Culverts, Buildings, Vehicles, Machinery and Equipment, and Land Improvements. The purpose of the information presented in this addendum is to assist in decision-making and planning for the future. Asset classes along with their current replacement values (CRVs) are shown in Table A1. A visual representation of the assets distributed by replacement value is set out in Figure A1. Following the presentation of each asset class is a brief discussion on the impacts of population and economic growth. A financing strategy follows.

Table A1: Asset Class CRVs

Asset Class	Current Replacement Value
Roads	$20,965,000
Bridges and Culverts	$6,150,000
Buildings	$1,960,200
Vehicles	$1,256,500
Machinery and Equipment	$1,253,000
Land Improvements	$307,700
Total	$31,892,400

Figure A1: CRV Distribution by Asset Class



Roads

State of Local Infrastructure

The Township of Machar's road network is its largest asset category in terms of size and value. The Township maintains roads with two types of surfaces, including 71.34 centreline km of gravel and 44.52 centreline km of low-class bituminous (LCB). The inventory of gravel roads includes both year-round and seasonally maintained roads, of which 9.8% of total roads are seasonally maintained. The distribution of roads by surface type is illustrated in Figure A2.

The average age of gravel road surfaces is 3.96 years, while the average age of paved roads surfaces is 6.3 years. Only gravel roads where date of last complete resurfacing is known have been included in this calculation. In many cases gravel may be applied to small sections of road as determined to be necessary, and not the entire road, so the true age of these roads is difficult to determine. Micro-surface treatment has been applied to multiple surface-treated Township roads, including Eagle Lake Road; however, its application has not been included in the calculation of road age. The intent of the micro-surfacing is to increase useful life and decrease operating costs of the already existing road surface.

The cost to replace the entire road network, in 2024 dollars, is $20,965,000. This figure excludes normal operating expenditures, such as road signs and street lights. A breakdown of the current replacement values for the Township's roads is shown in Table A2.

Figure A2: Road Classification by Surface Type

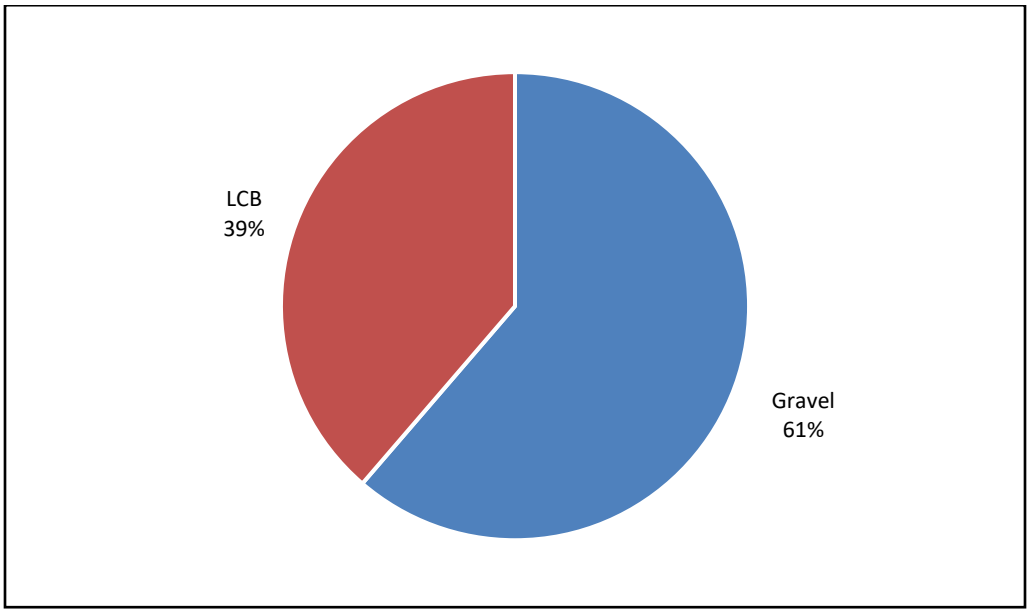


Table A2: Road Network CRVs

Surface Type	Length (KM)	Current Replacement Value
Gravel	71.34	$14,015,000
LCB	44.52	$6,950,000
Total	115.86	$20,965,000

Township staff assessed the condition of its gravel and paved roads. Gravel roads were assessed on a scale consisting of Good, Fair, and Poor. Paved roads were assessed using the Pavement Condition Index (PCI) which rates roads on a scale of 0 – 100, where 0 represents the road in failed condition and 100 in a new condition state.

The summary of condition states for gravel roads, derived from the MTO's *Manual for Condition Rating of Gravel Surface Roads*, can be found in Table A3. Table A4, derived from the MTO's *Manual for Condition Rating of Surface-Treated Pavements*, details condition states for paved roads and their corresponding values.

Table A3: Gravel Road Condition States

Condition State	Description
Good	Roadway surface well shaped with shoulder between roundings. Some distress manifestations in slight to moderate class such as loose gravel, dust, potholes, etc. There may be a few soft spots of frost heaving when evaluation is made in late spring. Good drainage for surface run-off on roadway and shoulder.
Fair	Mixture of properly shaped roadway surface and improperly shaped areas. Shoulder distress manifestations such as ponding and overgrowth evident between roundings in slight to moderate class. Various surface distress manifestations present such as washboarding, potholes, etc., in slight to moderate class. Localized breakup may be present.
Poor	Majority of roadway surface improperly shaped. Shoulder distress manifestations in moderate to severe class. Various roadway surface distress manifestations making travel unpleasant because of washboarding, dust, potholes, distortions, etc. Localized breakup areas.

Table A4: Paved Road Condition States

Pavement Condition Index Range	Condition State	Description
80 - 100	Excellent	Pavement is in excellent condition with just a few bumps or depressions from slight surface deformation. No surface defects such as streaking, potholes, or cracking distresses. Ride is very good.
60 - 79	Good	Pavement is in good condition with just a few bumps or depressions from slight to moderate surface deformation. Intermittent slight to moderate surface defects and/or cracking distresses. Ride is good.
40 - 59	Fair	Pavement is in fair condition with intermittent to frequent bumps or depressions from slight to moderate surface deformation. Intermittent to frequent moderate surface defects and/or cracking distresses. Ride is fair.
20 - 39	Poor	Pavement is in poor condition with frequent bumps or depressions from moderate surface deformation. Frequent moderate to severe surface defects and/or cracking distresses. Localized slight to moderate alligatoring crack may be present indicating pavement structural failure. Ride is poor.
0 - 19	Very Poor	Pavement is in very poor condition with extensive bumps or depressions from moderate to severe surface deformation. Extensive to severe surface defects and/or cracking distresses. Frequent slight to moderate alligatoring may be present, indicating pavement structural failures. Ride is very poor.

At the time of assessment, gravel roads in the Township of Machar received a weighted average condition rating of good (2.35 rated on a scale of 1-3). It should be noted that the condition of gravel roads can change quickly based on a variety of factors including traffic volume, weather, and grading frequency. Paved roads received a weighted average PCI rating of 75.33, indicating the Township's paved roads are in good condition. A breakdown of road conditions for gravel roads are displayed in Figure A3, while paved roads are shown in Figure A4. This information is summarized in Table A5 below.

Figure A3: Gravel Road Condition Ratings

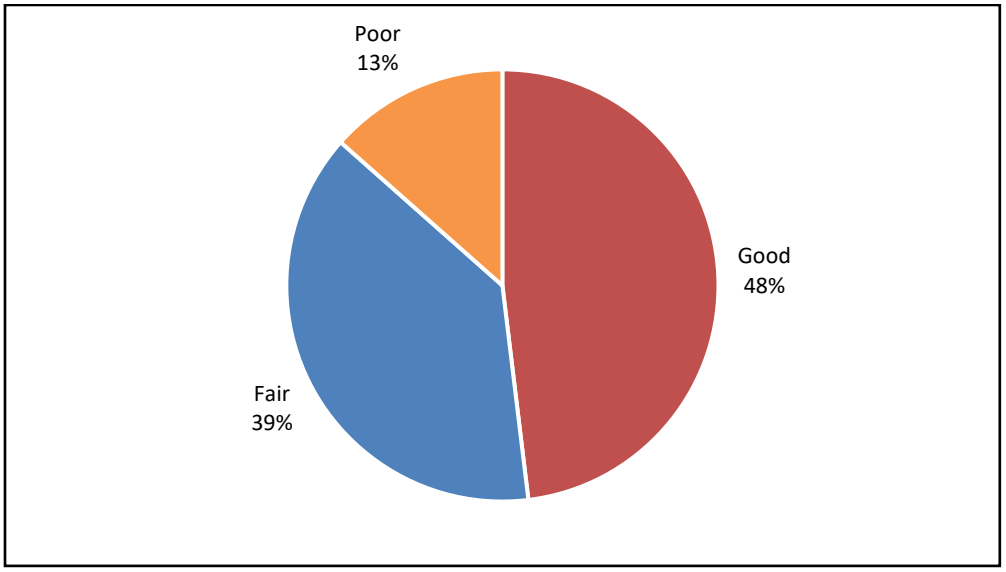


Figure A4: Paved Road Condition Ratings

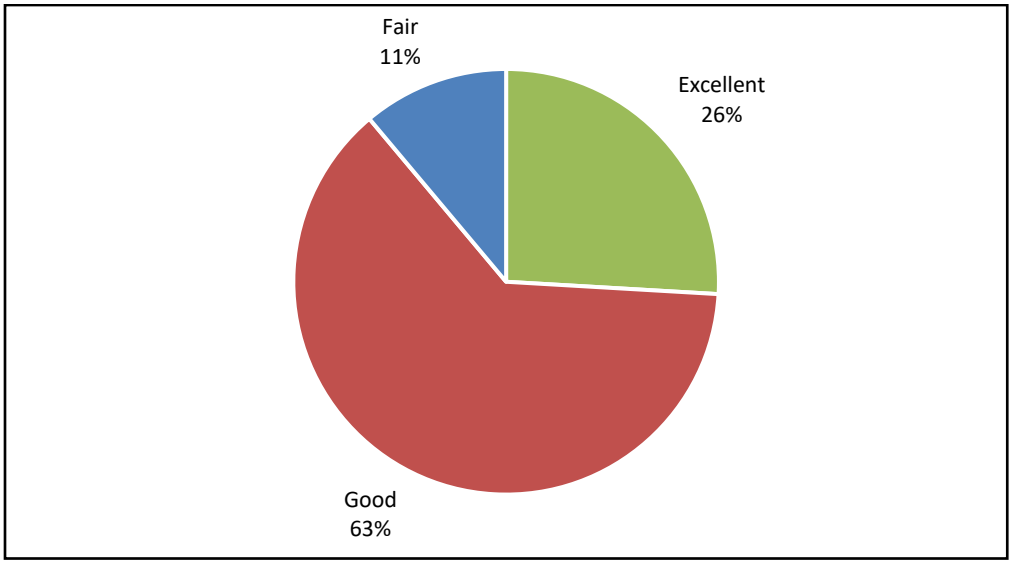


Table A5: Road Network Condition Ratings

Surface Type	Length (KM)	Condition Rating
Gravel	71.34	Fair (2.35)
LCB	44.52	75.33
Total	115.86	N/A

Moving forward, it will be important for the Township to regularly assess the condition of its roads to maintain accurate data and plan accordingly for the future. This may include assessment of the roads by Township staff, as well as studies completed by professional firms. Condition data will need to be updated at minimum every five years as required by O. Reg. 588/17.

Levels of Service

Table A6 below outlines the qualitative descriptions used to determine the community levels of service provided by the Township of Machar's road network.

Table A6: Community Levels of Service - Roads

Service Attribute	Qualitative Descriptions	Performance
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity	The Township's road network contains 115.86km of gravel and paved roads which provide travel throughout the Township and access to neighbouring municipalities. Our most heavily trafficked road is Eagle Lake Road, the Township's main arterial road. The Township's road network allows numerous individuals to access areas which may include residential, commercial, and tourist locations, such as Mikisew Provincial Park.
Quality	Description or images that illustrate the different levels of road class pavement condition	Table A3 and Table A4 provide descriptions of road conditions.

Table A7 describes the technical levels of service which relate to the road network.

Table A7: Technical Levels of Service - Roads

Service Attribute	Performance Measure	2024 Performance	Proposed Performance
Scope	Number of lane-kilometres of arterial roads as a proportion of square kilometres of land area of the Township	0.16km/km^2	Maintain Current
	Number of lane-kilometres of collector roads as a proportion of square kilometres of land area of the Township	N/A	Maintain Current
	Number of lane-kilometres of local roads as a proportion of square kilometres of land area of the Township	1.09km/km^2	Maintain Current
Quality	For paved roads in the municipality, the average pavement condition index value	75.33	Maintain Current
	For unpaved roads in the municipality, the average surface condition	2.35 (Good)	Maintain Current

The Township proposes to maintain their road network in its current condition state. The Township has no intention at this time to expand the road network. The decision to increase the number of roads it maintains, or increase the length and width of a road, will likely only be considered in the case of major population growth. This is not a concern at this time.

Lifecycle Management Strategy

Gravel Roads

The assessments for gravel roads are carried out by Township staff. The decision to regravel is often based on two factors: the current condition of the road and traffic levels. Determining a strategy for gravel roads can be challenging as the condition of these roads can change rapidly based on weather, level of traffic, and type of traffic.

To extend the life of gravel roads, preventative maintenance is carried out. These activities include grading, dust suppression, ditching, brushing, and spot/section replacement of gravel. Grading may occur 2-3 times per year on average, while calcium is often added once per year, dependent upon road traffic volumes. Ditching and brushing activities often occur in 10-year cycles.

While much of the lifecycle management strategy is based on the observations of various factors and difficult to predict, the Township can estimate when specific activities are likely needed to occur. The Township's most current Road Needs Study recommends gravel roads be resurfaced every 3-5 years. A generalized lifecycle model, with consideration taken from the Road Needs Study, can be found in Table A8. The average annual cost per centerline kilometer is $7,637. With 71.34km of gravel roads, the total average annual lifecycle capital cost is $544,824.

Table A8: Generalized Lifecycle Model - Gravel Roads

Activity	Cost per Centreline KM	Average Annual Cost per Centreline KM	Age
Regravelling	$38,187	$7,637	5

Surface Treated Roads

In a similar manner to gravel roads, Township staff generally decide to perform specific lifecycle activities on surface-treated roads based on their assessment of the road condition, as well as traffic levels. Preventative maintenance, which may include ditching, brushing, and patching are carried out as needed to extend the life of the road. Micro-surface treatment may also be applied to higher traffic roads to extend road life. When the road is no longer feasible to repair, resurfacing takes place as funds allow.

The Township creates 5- and 10-year capital roads plans which assists in the budgeting process. However, the plan is not static. Based on assessments of the roads, the decision may be made to amend the capital plan to meet the greatest needs first. A lifecycle model, found in Table A9, provides a general outline of which activities are typically considered when completing capital projects on road assets.

Table A9: Generalized Lifecycle Model - Surface Treated Roads

Activity	Cost per Centreline KM	Average Annual Cost per Centreline KM	Age
SST	$19,250	$2,750	5-7
Microsurface	$37,000	$5,286	5-7
Pulverize and DST/Full Reconstruction	$98,500	$4,925	14-20
Total	$154,750	$12,961	

Based on this lifecycle model, the average annual lifecycle capital cost is $577,024 for 44.52km of LCB roads. Table A10 outlines the total average annual lifecycle costs for roads.

Table A10: Average Annual Lifecycle Costs - Roads

Surface Type	Average Annual Lifecycle Cost
Gravel	$544,824
LCB	$577,024
Total	$1,121,848

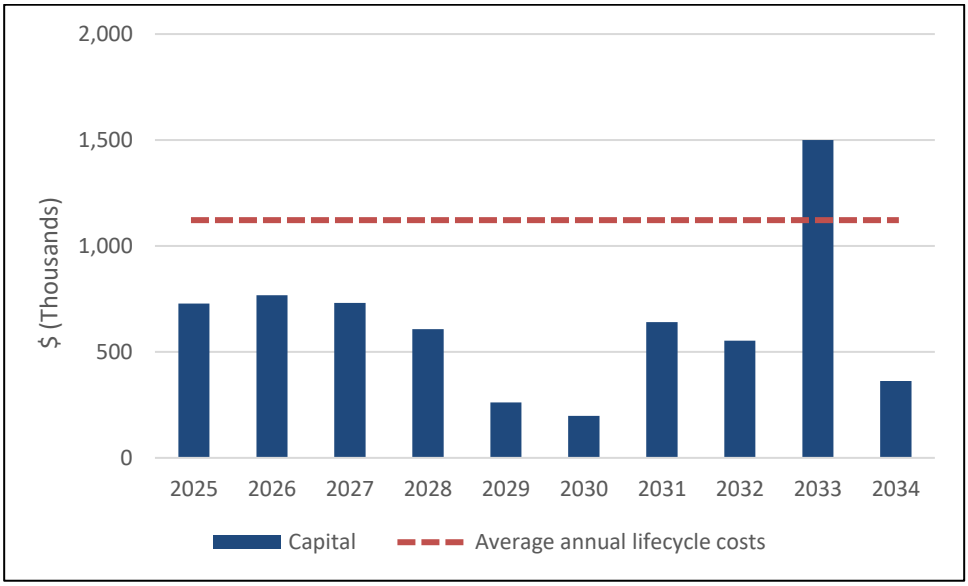
To meet the proposed levels of service for roads (maintain current overall rating of good), the Township will need to continue to perform the maintenance and lifecycle activities listed above. Annual investment in roads will need to increase to keep up with the replacement of roads coming due for rehabilitation or replacement.

There are always risks associated with the lifecycle activities which have been suggested above. It is important that the Township be prepared to mitigate any of these potential risks. Some of the risks may include: faster asset deterioration than anticipated, higher rehabilitation/replacement costs than anticipated, upgrades required to meet current design standards, and incorrect growth assumptions.

Figure A5 displays the 10-year forecast for the estimated annual capital funding requirements. Expenditures are not expected to be even and, therefore, plans should be made with this in mind. Strategies could include adjusting the timeline for which certain projects take place or contributing to reserves for known future projects. It should be noted that the figures may be imprecise to a degree because of the uncertainty of the last date of resurfacing for many gravel roads.

The large funding increase required in 2033 is related to Eagle Lake Road coming due for resurfacing. As the Township's main arterial road, it is a crucial part of the road network. Various funding options, such as grants, will be explored when it comes time to resurface the road.

Figure A5: 10-Year Capital Forecast – Roads



Bridges and Culverts

State of Local Infrastructure

The Township's inventory of bridges and culverts contains six structures. This includes four structural culverts and two bridges. Structural culverts are defined as spanning 3 metres or greater. The bridge and culvert assessments are based on the Ontario Structure Inspection Manual (OSIM) inspections completed in 2024.

It is estimated that the average useful life of the bridges and structural culverts is 75 years; however, this can vary depending on numerous factors. The average age of the Township's bridges is 35 years, while culverts have an average age of 40 years.

The cost to replace all bridges and structural culverts, in 2024 dollars, is $6,150,000. A breakdown of the current replacement values for these assets is shown in Table A11.

Table A11: Bridge & Culvert CRVs

Structure Type	Number of Assets	Current Replacement Value
Bridges	2	$3,200,000
Structural Culverts	4	$2,950,000
Total	6	$6,150,000

As legislated by the Province of Ontario, it is required that all bridge and culvert structures with a span greater than 3.0 meters be inspected under the direction of a Professional Engineer at no greater than two (2) year intervals. The inspection methodology and reporting must be done in accordance with the Ontario Structure Inspection Manual (OSIM). In compliance with this legislation, the Township of Machar completed its most recent OSIM inspection in 2024, where bridge conditions were assessed and recommendations for improvements provided in the report.

Bridges and culverts, similar to roads, can be rated on a scale called the Bridge Condition Index (BCI). Table A12, derived from the MTO's *Ontario Structure Inspection Manual – 2008* outlines the condition states of these assets. Table A13 outlines the weighted average bridge and culvert condition ratings derived from the 2024 OSIM inspection. It should be noted that BCI is not intended to rate or indicate a structure's safety, rather it is a planning tool developed by the Ontario ministry of Transportation to help schedule maintenance and rehabilitation work.

Table A12: Bridge & Culvert Condition States

BCI Range	Condition State	Description
70-100	Good	Not typically any maintenance required within the next five years.
60-69	Fair	Maintenance work needed within the next five years.
0-59	Poor	Maintenance work needed within one year. Structure may require a load restriction.

Table A13: Bridge & Culvert Condition Ratings

Structure Type	Number of Assets	Condition (Weighted Average)
Bridges	2	72
Structural Culverts	4	67
Total	6	70

Moving forward, it will be important for the Township to continue with inspections every two years so that maintenance, repairs, and replacement are planned and carried out at the time which is most cost effective, without compromising safety.

Levels of Service

Table A14 below outlines the qualitative descriptions used to determine the community levels of service provided by the Township of Machar's bridges and culverts.

Table A14: Community Levels of Service - Bridges & Culverts

Service Attribute	Qualitative Descriptions	Performance
Scope	Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	The Township of Machar has two bridges and four structural culverts. Structural culverts are classified as spanning 3 metres or greater. None of the bridges have loading or dimensional restrictions. This allows various types of vehicles to cross over the bridges without restriction, including heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, and cyclists.
Quality	Description or images of the condition of bridges and how this would affect use of the bridges	Table A12 provides descriptions of bridge and culvert conditions.
	Description or images of the condition of culverts and how this would affect use of the culverts	

Table A15 describes the technical levels of service which relate to the bridges and culverts.

Table A15: Technical Levels of Service - Bridges & Culverts

Service Attribute	Performance Measure	2024 Performance	Proposed Performance
Scope	Percentage of bridges with loading or dimensional restrictions	0%	Maintain Current
Quality	For bridges in the municipality, the average bridge condition index value	72	Maintain Current
	For structural culverts in the municipality, the average bridge condition index value	67	⬆

The Township intends to maintain its bridges so that none require load restrictions, and the bridge condition index value remains above 70. This will be achieved through ongoing maintenance, repair, and replacement of various bridge components.

The Township hopes to increase the BCI value for culverts through replacement and rehabilitation. The Township believes this proposed performance to be achievable within the next ten years through planned capital projects, including the replacement of the large Municipal Rd N Culvert scheduled for 2025, as well as the rehabilitation of the Black Creek Culvert on Eagle Lake Rd.

Lifecycle Management

The OSIM reports required every two (2) years are utilized as a short- and medium-term planning tool for bridge and structural culvert repair, rehabilitation, and replacement. The report provides recommended activities to occur on the assets within the following ten (10) years, with priority rankings provided. Township staff review maintenance and repair options to ensure activities occur at the best value for the lowest cost, so that the Township is maintaining its current inventory and striving to meet its proposed levels of service.

Bridges are generally described as having a 75-80-year expected useful life; however, maintenance, repairs, and rehabilitation activities may increase their life. Table A16 outlines a generalized lifecycle model for bridges.

Table A16: Generalized Capital Lifecycle Model – Bridges

Activity	Age
Minor Rehabilitation	25
Major Rehabilitation	50
Replacement	80

Steel culverts have an estimated 45-60-year useful life. Table A17 outlines a generalized lifecycle model for steel culverts. Table A18 outlines the general lifecycle model of concrete culverts, which have an estimated 100-year useful life. It should be noted that routine maintenance, as well as rehabilitation can extend the life of these assets.

Table A17: Generalized Capital Lifecycle Model – Steel Culverts

Activity	Age
Minor Rehabilitation	25
Major Rehabilitation	40
Replacement	60

Table A18: Generalized Capital Lifecycle Model – Concrete Culverts

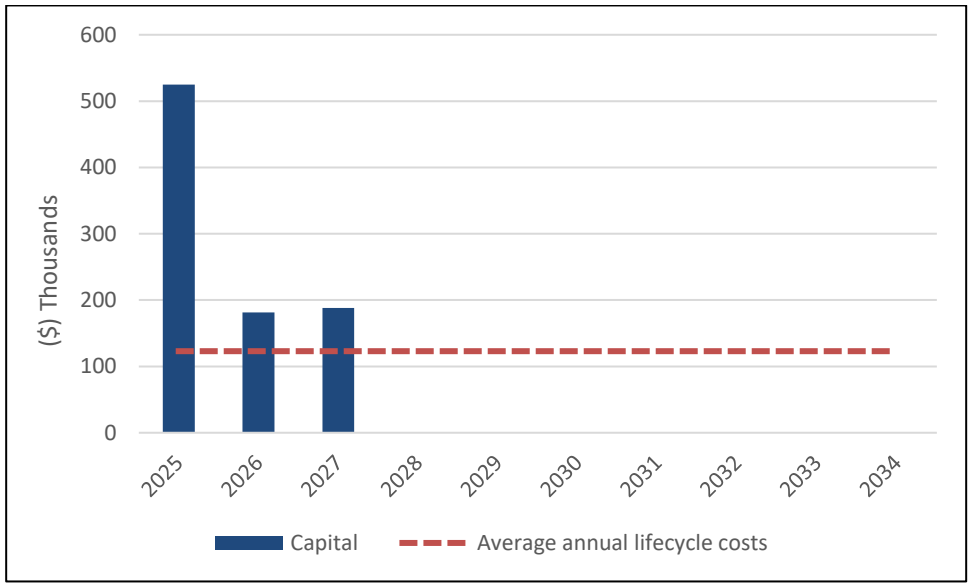
Activity	Age
Minor Rehabilitation	30
Major Rehabilitation	50
Replacement	100

The 2022 OSIM Report suggests budgeting approximately 2%, or $123,000, of the overall replacement value of the Township's entire structure inventory annually to maintain the current system. In addition to the $123,000 annual amount, the 2024 OSIM report recommended $745,000 in capital work be completed. Of the $745,000, $450,000 is estimated for the replacement of the large Municipal Rd N culvert which is scheduled to be completed Summer 2025. In addition to the recommended capital work in the 2024 OSIM Report, the Township performs preventative maintenance in an attempt to preserve the current condition of the assets and slow deterioration. Maintenance may include sweeping, replacing missing nuts/bolts, installing appropriate signage, removing debris, maintaining proper drainage, etc. It should be noted that repair and maintenance activities, although planned, can change based on a number of factors such as different than expected rate of deterioration, updated condition assessments, or varying growth patterns. The Township monitors changes in assets and updates plans accordingly.

Risks must be recognized and mitigated as greatly as possible in relation to the lifecycle activities mentioned above. Some of the risks of lifecycle activities include, but are not limited to: increasing regulatory requirements, weather patterns, incorrect useful life assumptions, premature asset failure, and higher maintenance and rehabilitation costs than expected.

The generalized lifecycle models for bridges and culverts, as well as recommendations and estimates from the 2024 OSIM Report, have been used to develop a 10-year forecast for lifecycle activities. Figure A6 shows the estimated annual capital funding requirements for the next ten (10) years. Since the expenditures are not estimated to be the same each year, planning ahead with the use of scheduling and reserves should be considered.

Figure A6: 10-Year Capital Forecast - Bridges & Culverts



Buildings

State of Local Infrastructure

The Township of Machar is responsible for operating five (5) buildings. These buildings are used for municipal and recreational use. They are a key part in carrying out the day-to-day operations of the Municipality and providing a high level of service to residents and visitors.

The average age of the buildings is 43 years (weighted by replacement value). The Township is working on updating its inventory going forward to calculate the average age by asset component; however, current data is not advanced enough at this time for that figure.

The cost to replace the Township's buildings, based on 2024 insurance estimates, is $1,960,200. A breakdown of these costs can be found in Table A18.

Table A18: Building CRVs

Department	Number of Buildings	Current Replacement Value
Administration	1	$486,200
Public Works - Roads	2	$1,127,500
Public Works - Landfill	1	$200,400
Parks	1	$146,100
Total	5	$1,960,200

Staff assessments have been carried out to determine the condition ratings of the Township's buildings. Buildings were assessed on a scale ranging from excellent to very poor. This scale along with corresponding descriptions can be found below in Table A19.

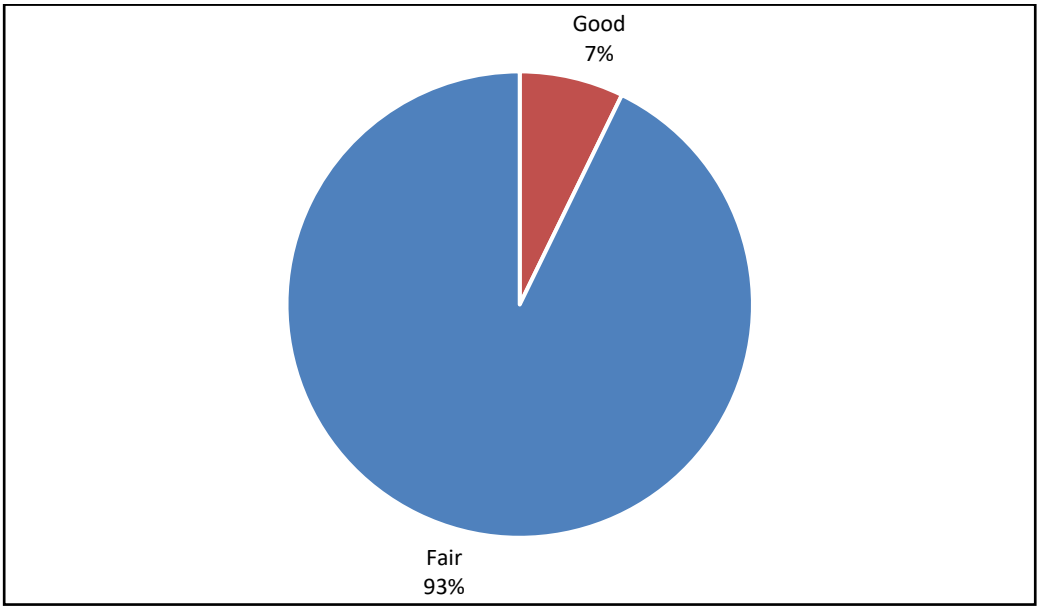
Table A19: Building Condition States

Condition State	Description
Excellent	Like new condition. No defects.
Good	Minor defects noticeable. Minimal repairs needed.
Fair	Some defects/deterioration in occurrence. Use of the asset not greatly affected. Some repairs needed.
Poor	Major defects/deterioration. Function of asset severely affected. Major rehabilitation or replacement is needed.
Very Poor	Asset is no longer functional. Replacement is needed.

The most recent assessment of buildings shows that the average condition rating is fair, based on the weighted replacement value. This indicates that buildings in the Township may need some repairs; however, the use of the buildings is not generally affected by these needs and

service can continue to be provided. Condition ratings distributed by current replacement value can be viewed in Figure A7.

Figure A7: Building Condition Ratings



Moving forward, it is important that regular inspections be carried out to identify maintenance and repair needs so that use of the buildings is uninterrupted.

Levels of Service

Table A20 outlines the qualitative descriptions used to determine the community levels of service provided by the Township of Machar's buildings.

Table A20: Community Levels of Service – Buildings

Service Attribute	Performance
Quality	The Township maintains its buildings to a level that provides good user experiences.

Table A21 describes the technical levels of service which relate to the Township's buildings.

Table A21: Technical Levels of Service – Buildings

Service Attribute	Performance Measure	Performance	Proposed Performance
Quality	The average condition rating of all buildings in the Municipality	Fair	Rating ≥ Fair
	Number of inspections carried out annually	Not Currently Available	N/A

The Township proposes to maintain the condition ratings of buildings at a minimum of fair through ongoing maintenance and repairs, as well as planning for the replacement of its existing buildings as necessary. As the buildings continue to age, it is important to monitor their conditions. The buildings need to be able to facilitate the administration of Council's policies. The physical structures of the buildings must be adequate to serve the public and carry out necessary tasks, they must be accessible, and they must have the necessary capacity to facilitate staff and the public.

The proposed level of service for buildings is possible in the long-term through planning and the use of reserves. It is important for regular maintenance and repairs to occur to keep current buildings in good condition. Due to the high costs anticipated for building upgrades or replacement, it will be important for the Township to transfer money to reserves to pay for these activities as they come due so that large tax rate increases do not occur at the time in which these activities occur.

The Township hopes to implement detailed tracking of building inspections carried out so that deficiencies and improvements are accurately followed. This will allow Council and staff to make informed decisions regarding the buildings.

Lifecycle Management

The current lifecycle management strategy for buildings relies upon accounting useful life estimates, as well as condition assessments. Buildings are currently amortized in accounting records over 50 years. This is the estimated useful life used in this Plan. However, it should be noted that the life of buildings may be extended well beyond 50 years through preventative and normal maintenance, minor and major rehabilitation, and component replacement. These activities may include component replacement, regular cleaning, groundskeeping, and inspections. Failure of building assets can pose great risks to the Township due to their critical role in operations, as well as the costliness and complexity to replace. Some risks related to the

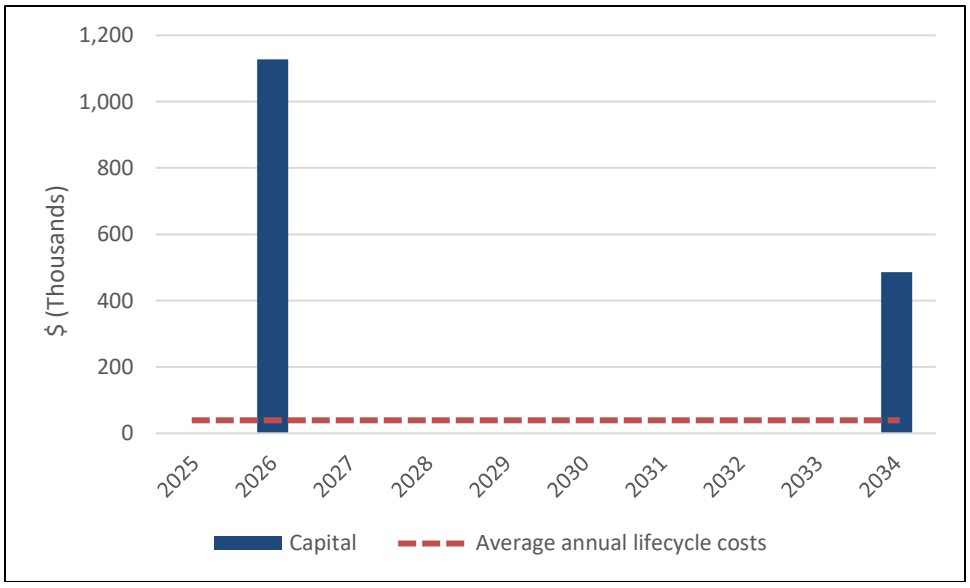
lifecycle activities of buildings include: cost and incorrect timing of component replacement and complexity of planning/zoning/building regulations.

As age of components for each building are not known in entirety, the lifecycle strategy includes only replacement of the buildings at 50 years old. With the maintenance, repairs, and component replacement carried out by the Township, it is anticipated that buildings will last longer than the accounting useful life. The average annual lifecycle costs have been estimated and are shown in Table A22. Figure A8 shows the estimated annual capital funding needs for the next 10 years. It should be noted that this graph is based on replacement of each building every 50 years. In practice, it is more likely that costs will be smoother as building components are replaced when needed. As data is gathered and buildings are tracked based on component, a lifecycle and financing strategy will become increasingly accurate.

Table A22: Average Annual Lifecycle Costs – Buildings

Asset Class	Average Annual Lifecycle Cost
Buildings	$39,204

Figure A8: 10-Year Capital Forecast – Buildings



Vehicles

State of Local Infrastructure

The Township of Machar's vehicle fleet makes up a crucial component of its entire asset inventory. Five (5) vehicles, including two (2) pick up trucks and three (3) plow trucks, make up this category. These vehicles belonging to the Public Works Department are used in daily operations to carry out the monitoring, maintenance, and improvement of the Township road network. Activities such as patrolling, snowplowing, pothole repair, and gravelling roads are done with the use of these vehicles.

The pick-up trucks were purchased new in 2014 and 2018, while plow trucks were purchased new in 2008, 2013, and 2020. As of 2024, the average age of vehicles, weighted by replacement value, is 10 years.

The cost to replace the entire vehicle fleet, in 2024 dollars, is $1,256,500. A summary of the replacement values is found in Table A23 below.

Table A23: Vehicle CRVs

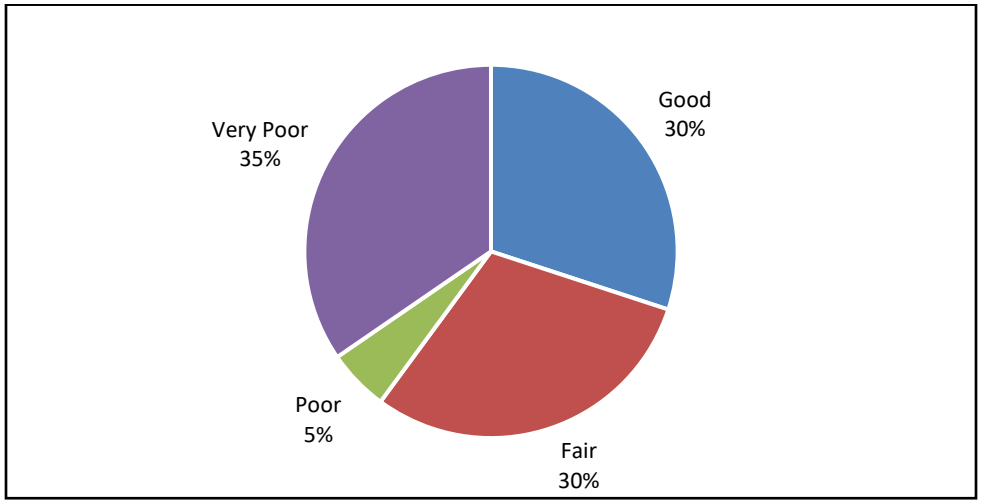
Vehicle	Number of Assets	Current Replacement Value
Pick-Up Truck	2	$124,000
Plow Truck	3	$1,132,500
Total	5	$1,256,500

Condition assessments for vehicle assets are age-based. Condition states are summarized in Table A24. The average condition rating (weighted average) for the assets in this class is fair. Condition ratings by current replacement value can be viewed in Figure A9.

Table A24: Useful Life Condition States

Useful Life %	Condition State	Description
0% - 9%	Excellent	Only normal maintenance required.
10% - 49%	Good	Normal and preventative maintenance required.
50% - 74%	Fair	Some signs of deterioration. Minor repairs expected.
75% - 100%	Poor	Significant signs of deterioration. Major rehabilitation or replacement expected soon.
>100%	Very Poor	Asset beyond useful life. Replacement is required.

Figure A9: Vehicle Condition Ratings



The Township carries out many preventative maintenance and normal maintenance activities on its vehicles. This allows for the use of vehicles beyond their expected useful life, which is not reflected in the condition ratings. It is hopeful for future updates that the Township will be able conduct condition assessments on their vehicles to produce a more accurate condition rating.

Levels of Service

Table A25 below outlines the qualitative descriptions used to determine the community levels of service provided by the Township of Machar's vehicles.

Table A25: Community Levels of Service - Vehicles

Service Attribute	Qualitative Descriptions
Reliability	The Township maintains their vehicles so they are reliable in performing the tasks required.

Table A26 describes the technical levels of service which relate to the Township's vehicles.

Table A26: Technical Levels of Service – Vehicles

Service Attribute	Performance Measure	2024 Performance	Proposed Performance
Reliability	Average reliability of vehicles (rated by staff)	Not Currently Available	N/A
	Average condition rating	Fair	Rating ≥ Fair
	Number of vehicle assets with a condition rating of poor or worse	3	⬇

The Township of Machar proposes to reduce the number of vehicles with a condition of poor or worse, and by doing this increase the average condition rating. Condition assessments carried out on vehicles would provide a more accurate reading of their state, and may change the current condition ratings based on age.

Township staff currently ensure to perform normal and preventative maintenance, as well as repairs, on vehicles. Some of these activities may include component replacement, greasing, oil changes, and regular inspections. The continuation of these activities assists in meeting the levels of service. The replacement of vehicles will also aid the Township in meeting the proposed service levels for vehicles. The Township's oldest plow truck is being replaced in 2025 which will improve the average condition rating. It may be challenging for the Township to continue to meet the proposed performance on a continual basis as it is expensive to repair and replace vehicles. There appears to be a trend of vehicle lifespans becoming shorter, and repair costs increasing, creating financial challenge to the Municipality.

Lifecycle Management

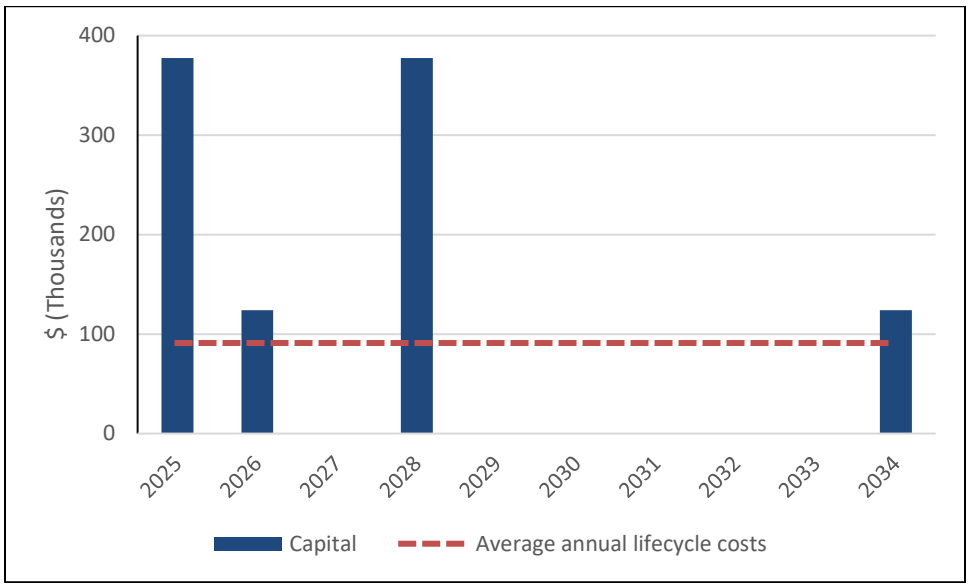
The lifecycle management strategy for vehicles relies heavily upon age-based estimates and accounting useful life figures. Staff and Council will identify the need to replace vehicle assets through a review of the age and condition of vehicles, as well as current maintenance and repair costs. The decision will be made while attempting to achieve the best value for the lowest cost to taxpayers.

The average annual lifecycle costs for vehicles have been estimated by dividing replacement cost by the estimated useful life. These costs are found in Table A27. Figure A10 shows the estimated annual capital funding needs for the next 10 years.

Table A27: Average Annual Lifecycle Costs – Vehicles

Asset Class	Average Annual Lifecycle Cost
Vehicles	$91,000

Figure A10: 10-Year Capital Forecast – Vehicles



Machinery and Equipment

State of Local Infrastructure

The Township of Machar's fleet of machinery and equipment is composed of items from the Administration, Roads, and Landfill Departments. The machinery and equipment are used in daily operations to complete administrative duties, maintain roads, and operate the Landfill.

The average age of machinery and equipment assets, weighted by replacement value, is 8 years. The cost to replace the entire asset class is $1,253,000. A summary of the replacement values, categorized by department, is found in Table A28.

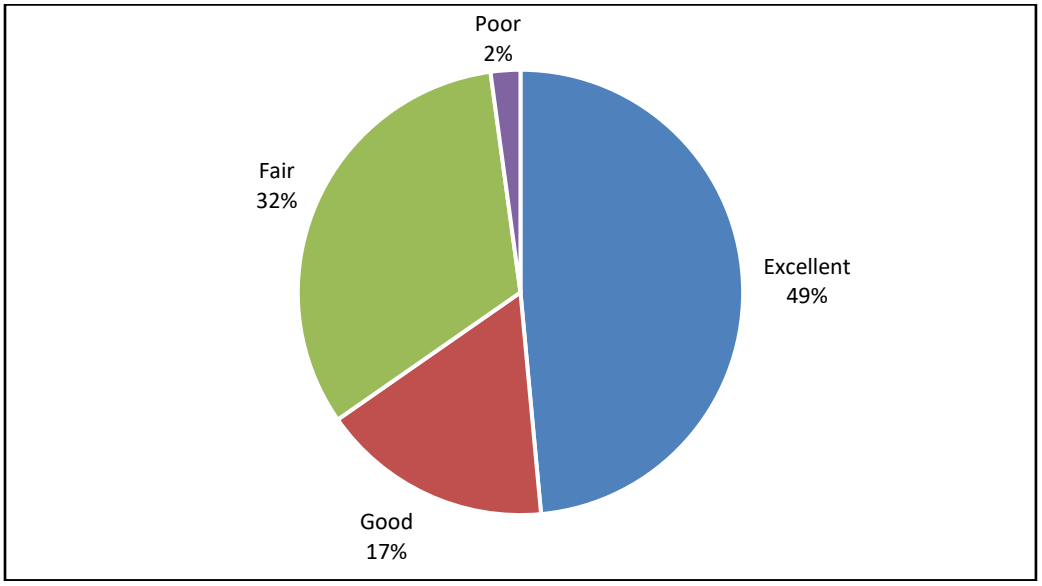
Table A28: Machinery & Equipment CRVs

Department	Number of Assets	Current Replacement Value
Administration	2	$27,000
Public Works - Roads	6	$902,500
Public Works - Landfill	2	$323,500
Total	10	$1,253,000

Condition assessments for machinery and equipment are age-based. Condition states are the same as presented for vehicles, summarized in Table A24. The average condition rating (weighted by replacement value) for the assets in this class is good. Condition ratings distributed by replacement value can be viewed in Figure A11.

The Township carries out preventative and regular maintenance on its machinery and equipment, with the intent of extending the life of the assets. With the maintenance activities performed, there is possibility that some of the condition ratings of the assets based on age are not truly reflective of the asset's condition. In the future, the Township hopes to conduct condition assessments of its assets on an individual basis, producing more accurate ratings and estimations of remaining useful life.

Figure A11: Machinery & Equipment Condition Ratings



Levels of Service

Table A29 below outlines the qualitative descriptions used to determine the community levels of service provided by the Township of Machar's machinery and equipment.

Table A29: Community Levels of Service - Machinery & Equipment

Service Attribute	Qualitative Descriptions
Reliability	The Township maintains their machinery and equipment so they are reliable in performing their required tasks.

Table A30 describes the technical levels of service which relate to machinery and equipment.

Table A30: Technical Levels of Service - Machinery & Equipment

Service Attribute	Performance Measure	2024 Performance	Proposed Performance
Reliability	Percentage of regularly scheduled maintenance performed	Not Currently Available	N/A
	Average condition rating	Good	Maintain Current
	Number of machinery and equipment assets with a condition rating of poor or worse	2	Maintain Current

The Township proposes to maintain its machinery and equipment at the levels which they are operating at now. However, they would like to work towards providing assessment-based, rather than age-based, condition ratings to gain a more accurate representation of these assets.

Like other assets, the Township performs regular maintenance and repairs on machinery and equipment assets, such as oil changes, greasing parts, and component replacement. By continuing with the current activities, the Township can meet its proposed performance for these assets. There is concern, however, regarding the ability to afford replacement of the larger assets (e.g. tractor, loader, compactor, backhoe) as they come due, which pose a risk to smooth operations. Careful planning and use of reserves will be essential to ensuring replacement occurs as needed.

Lifecycle Management

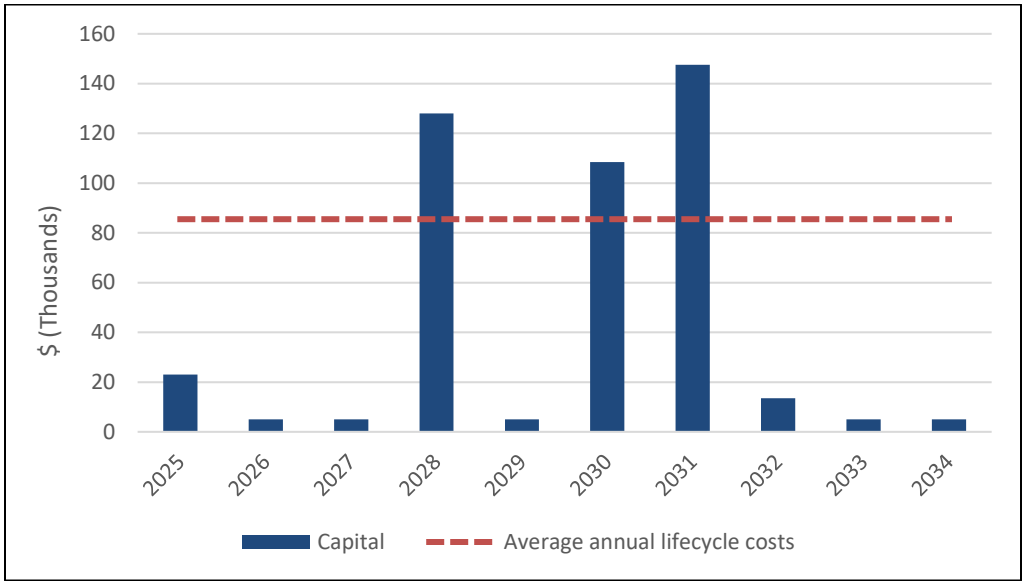
As with vehicles, the machinery and equipment strategy formation has heavily relied upon age-based data and accounting useful life estimates. Township staff will identify machinery and equipment assets which have reached the end of their useful life based on the reliability and effectiveness of the asset along with a cost analysis. The decision for major rehabilitation or replacement will be made by Council, taking into consideration various factors such as cost, funds available, risk, and asset priority.

The average annual lifecycle costs for machinery and equipment have been estimated by dividing the replacement cost by estimated useful life. Table A31 displays the average annual lifecycle costs estimated to be $85,483. Figure A12 presents the estimated annual capital funding needs for the next 10 years.

Table A31: Average Annual Lifecycle Costs - Machinery & Equipment

Asset Class	Average Annual Lifecycle Cost
Machinery and Equipment	$85,483

Figure A12: 10-Year Capital Forecast - Machinery & Equipment



Land Improvements

State of Local Infrastructure

Land improvements include a variety of assets located at multiple spots within the Township. These assets aim to provide an improved level of service to residents and visitors. Land improvement assets include the office parking lot, speed signs, gates, fencing, lighting, water wells for testing, playground equipment, boat launch, and dock.

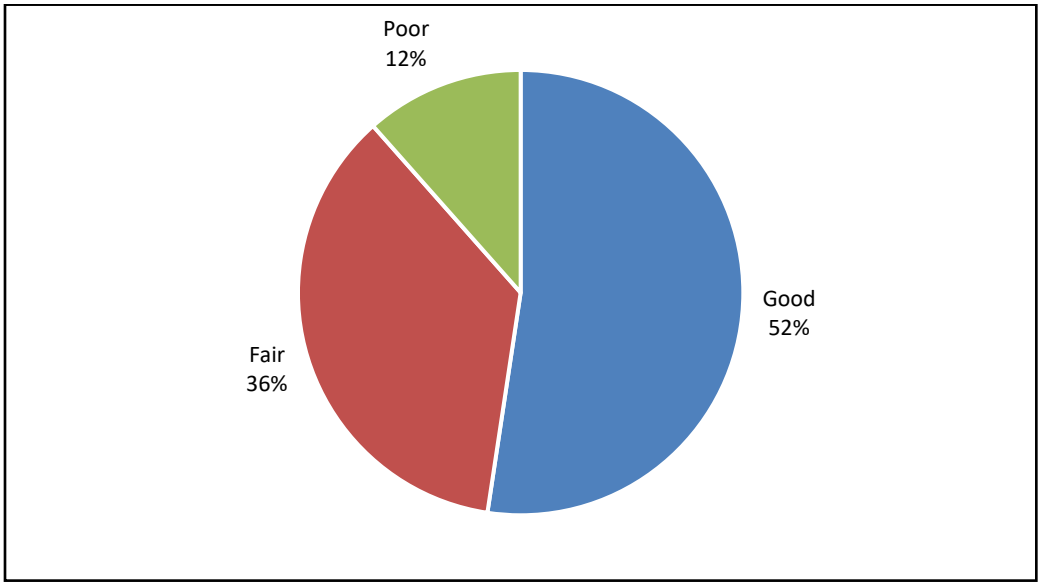
The average age of these assets (weighted by replacement value) is 10 years. The cost to replace the land improvement assets is $307,700. A further breakdown can be found in Table A32 below.

Table A32: Land Improvement CRVs

Department	Number of Assets	Current Replacement Value
Administration	1	$33,000
Public Works - Roads	1	$9,200
Public Works - Landfill	3	$84,000
Parks	4	$181,500
Total	9	$307,700

Condition assessments for land improvement assets are age-based. Condition states are the same as summarized under the *Vehicles* section in Table A24. The average condition rating (weighted) for the assets in this class is good. A breakdown of condition ratings can be viewed in Figure A13. It should be noted that condition based on age does not factor in some maintenance activities that have been performed to extend useful life. Condition assessments of each individual asset would provide the most precise rating. In the future, the Township hopes to conduct condition assessments on these assets to provide a more accurate rating.

Figure A13: Land Improvement Condition Ratings



Levels of Service

Table A33 below outlines the qualitative descriptions used to determine the community levels of service provided by the Township of Machar's land improvements.

Table A33: Community Levels of Service - Land Improvements

Service Attribute	Qualitative Descriptions
Reliability	The Township aims to maintain land improvements so they perform as intended

Table A34 describes the technical levels of service which relate to the land improvements.

Table A34: Technical Levels of Service - Land Improvements

Service Attribute	Performance Measure	2024 Performance	Proposed Performance
Reliability	Average condition rating of land improvement assets	Good	Maintain Current
	Number of land improvement assets with a condition rating of poor or worse	2	⬇

The Township of Machar intends to maintain an average condition rating of good for land improvement assets, while decreasing the number of assets in poor or worse condition. As conditions are age-based for this asset class, it is difficult to determine whether the two assets listed as poor or worse are physically in that condition state. The Township hopes to conduct condition assessments to gain more accurate information.

Lifecycle Management

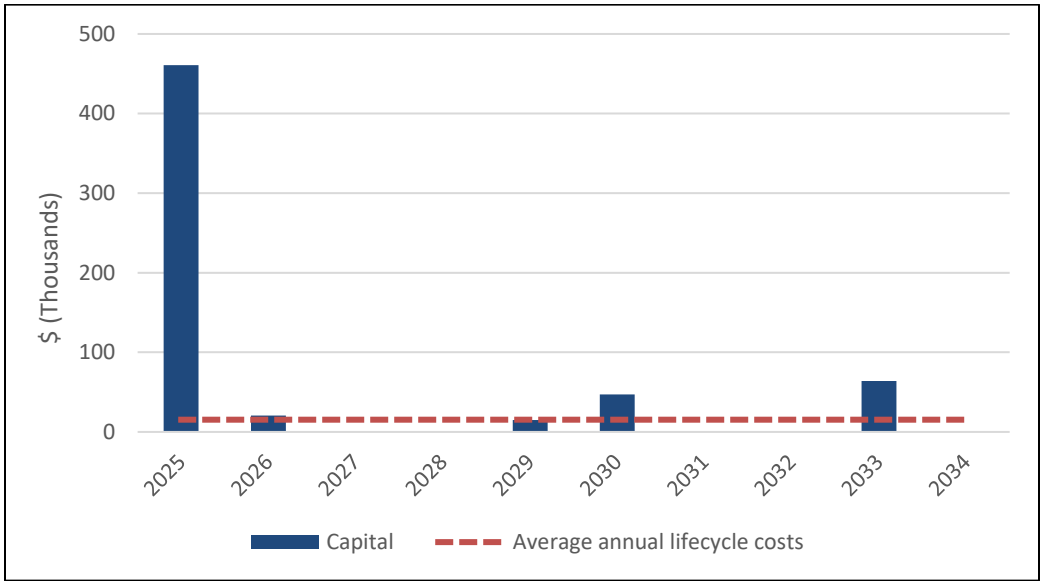
The lifecycle management strategy for land improvements is also age-based. The useful life estimates are based on accounting useful life, and costs are inflated historical amounts. As assets are used and their life is diminished, Township staff will identify the need to replace the assets. Decisions on which assets will be replaced first will be based on the funds available, as well as risk and asset use. Specific lifecycle activities can vary based on the large variety of assets within this asset category. Generally, they may include routine inspections to detect deficiencies, regular maintenance, repairs, and component replacement.

The average annual lifecycle costs have been estimated by dividing replacement cost by the estimated useful life. These costs are found in Table A35. Figure A14 shows the estimated annual capital funding needs for the next 10 years.

Table A35: Average Annual Lifecycle Costs - Land Improvements

Asset Class	Average Annual Lifecycle Cost
Land Improvements	$15,385

Figure A14: 10-Year Capital Forecast - Land Improvements



Population and Economic Growth

The 2021 Census recorded a population of 969, which is a 9.9% increase over the 2016 population count of 882. The annual growth rate is approximately 1.98% per year. The Township is expecting to see more growth and development as individuals continue to move further north as a result of seeking a quieter lifestyle or choosing to retire in the Municipality.

A continued increase in population may necessitate the expansion of the current inventory, and possibly the services provided; however, this would be far into the future. Because growth related expansion is likely very far in the future, it did not impact the lifecycle management or financial strategy within the 10-year timeframe outlined in the Plan. Another factor to be considered would be the need for increased human capital, or skilled employees, to deliver these services. Moving ahead it will be important to consider the effects of growth in relation to various plans, including the Asset Management Plan. The Township will need to consider which services are most crucial and how to fund those services while meeting its proposed levels of service.

Financing Strategy

The financing strategy examines how the assets listed within the Plan can be funded to meet the proposed levels of service outlined for each asset category. The financing strategy will need to be re-evaluated on a regular basis as changes may occur.

If the Municipality proposed to meet levels of service whereby all assets were replaced at the end of their useful life, they would need to spend $1,431,470 annually on capital items, as shown in Table A36.

Table A36: Total Average Annual Lifecycle Costs - Capital

Asset Class	Average Annual Lifecycle Costs
Roads	$1,121,848
Bridges & Culverts	$80,500
Buildings	$39,204
Vehicles	$91,000
Machinery and Equipment	$83,533
Land Improvements	$15,385
Total	$1,431,470

The Township of Machar spent $402,000, $377,000, and $1,628,000 on capital items in 2022, 2023, and 2024, respectively. In 2024, the large increase in capital spending was only possible with the use of reserves. It is not financially feasible for the Township to spend $1,431,470 on capital projects each year, so they have proposed levels of service where assets are extended to meet a life greater than expected, sometimes falling below a condition threshold of good.

The proposed annual capital expenditures for 2025-2034 are shown in Figure A15 below. The expenditure forecast is based on the capital expenditures planned in the 2025 budget, as well as the lifecycle activities identified in the previous sections of this document. The figures included in the expenditure forecast have been inflated at a rate of 3.8% annually, aligning with the 60-year historical average.

Figure A15: Annual Capital Expenditures – Inflated

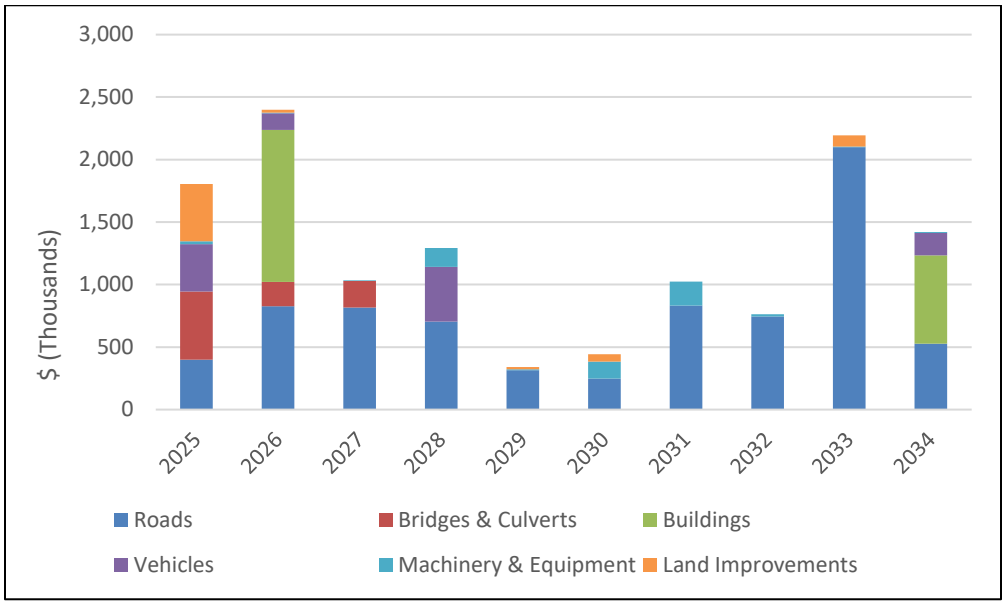


Figure A16 displays a breakdown of total expected capital expenditures with their corresponding operating costs. Operating costs have been based on historical average and inflated based on a rate of 3.8%. Please note the operating expenses do not include expenses not related to a capital asset. It will be important for the Municipality to make use of transfers to and from reserves when planning for the future to smooth tax rate increases year-over-year, eliminating sharp increases and decreases in the required tax levy.

Figure A16: Annual Capital & Operating Expenditures – Inflated

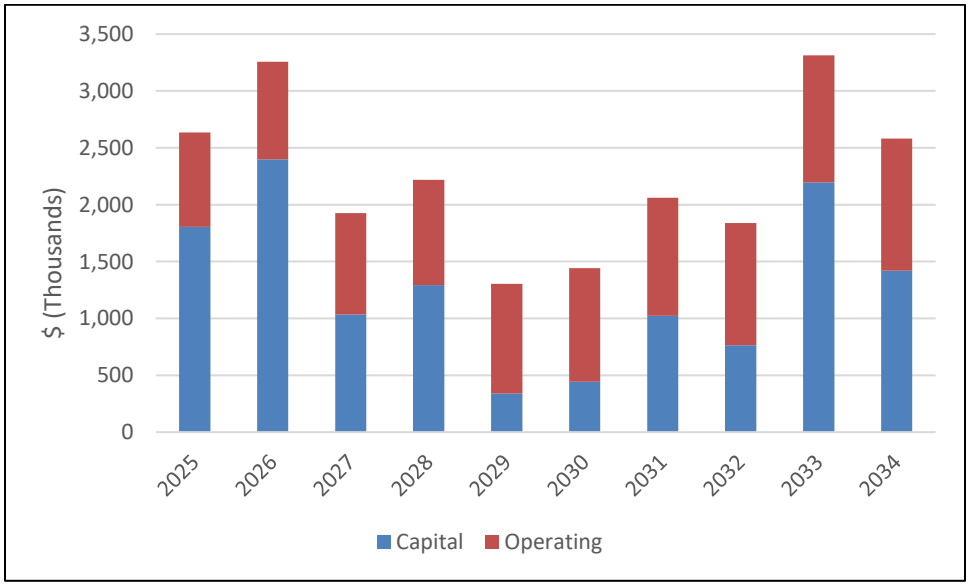
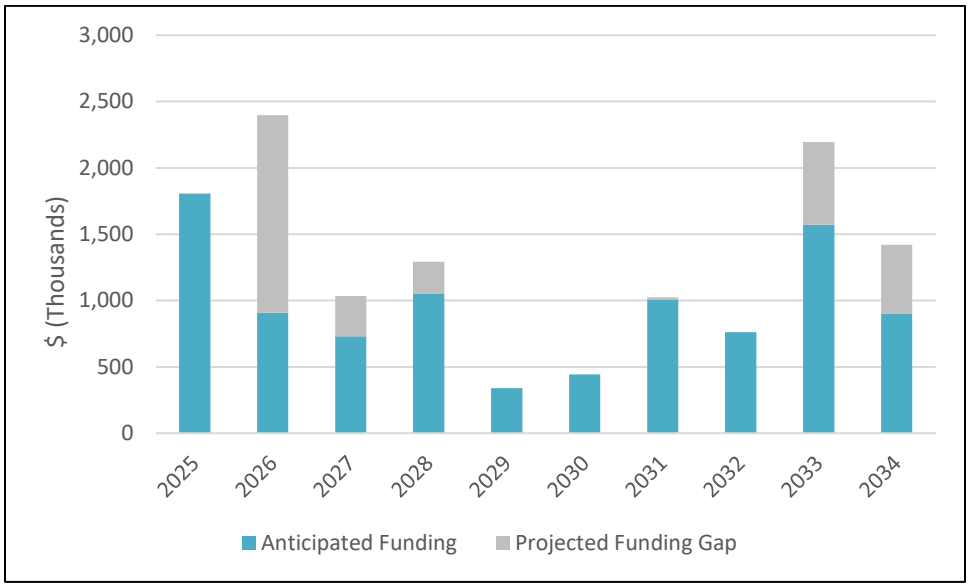


Figure A17 displays the annual funding projected to be available for the Township to carry out capital lifecycle activities and the expected funding gap.

Figure A17: Projected Funding Available – Inflated



It should be noted that the projected funding and funding gap is based on a number of assumptions, and therefore can change when put into practice. The proposed capital projects, specifically for gravel roads, do not include every lifecycle activity at the ideal date. For example, the regravelling of gravel roads should typically occur every 3-5 years; however, the proposed regravelling projects for many roads in this Plan are stretched beyond 5 years to create greater financial feasibility. It is also assumed that there will be a budget increase of 3.8% each year to account for inflation (based on historical inflation rates). This does not include growth related increases or increased responsibilities handed down from higher levels of government. Figure A17 above assumes that for 2026-2034 approximately 10% of the overall Township budget will be set aside for capital projects, other than in years where lower amounts of funding are expected to be required. At the time of this Plan update, the 2025 budget has already been adopted by Council and expected funding and expenses are known or estimated.

The anticipated funding amounts include grants, municipal funds (taxation), and reserve use. Grant funding for 2025 includes the Canada Community Building Fund (CCBF), Ontario Community Infrastructure Fund (OCIF), the Northern Ontario Resource Development Support Fund (Municipal Rd N Culvert replacement), and the Northern Ontario Heritage Fund Corporation (Retaining Wall). Grant funding for 2026-2034 is only expected from the CCBF and OCIF. Funding amounts for the expected continuing grants are based on 2025 funding

allotments. The Township will continue to search and apply for grants to cover the costs of capital projects which have an associated funding gap.

Reserve use will play a key role in the Township's capital plan. Historically the Township has avoided sharp tax levy increases by borrowing from and repaying reserves. It is crucial to ensure reserves are continually being funded so that this trend can continue and the Township remains in good financial standing.

Figure A17 above shows a funding gap in many of the years included. If funding has not been found through other methods such as revenues, grants, or reserves, the Township will have to explore other options such as financing or delaying lifecycle activities. Deferral of lifecycle activities may include, but is not limited to, extending the timeframe in which road resurfacing is completed, component rather than entire asset replacement, or letting assets drop below the desired condition. Decisions to defer lifecycle activities will be made on a case-by-case basis but generally will consider consequences of asset failure, probability of asset failure, and level of usage.